

Appln No. 09/882,351
Amdt date August 13, 2003
Reply to Office action of April 17, 2003

REMARKS/ARGUMENTS

Claims 1 to 5 and 7 to 15, and 17 to 23 are pending. Applicant has canceled claims 6 and 16, amended claims 1, 7, 14 and 17 to 20 and added new claim 23. The amendments find full support in the original specification and claims. No new matter is presented. In view of the above amendments and following remarks, Applicant respectfully requests favorable reconsideration and a timely indication of allowance.

The Examiner rejected claims 1, 2, 5 to 7, 13 and 21 under 35 U.S.C. § 102(b) as allegedly anticipated by Rourke et al. (U.S. Patent No. 4,720,910). Applicant respectfully traverses this rejection.

Claim 1, as amended, recites a method of preparing positive active material for a lithium secondary battery comprising: preparing a coating solution by dissolving a conductive polymer, a conductive agent, and an ionic conductive polymer different from the conductive polymer in a solvent; and coating lithium complex metal oxide particles with the coating solution to thereby encapsulate the particles with the coating solution. Claim 1 has been amended to include the limitation of original claim 6 and to clarify that the ionic conductive polymer is different from the conductive polymer. These limitations are neither taught nor suggested by the cited references, even in combination.

Rourke discloses a method for preparing an encapsulated cathode material. According to the method, an insertion compound is encapsulated with an ionically and electronically conducting polymeric wall. Examples of the insertion compound are transition metal oxides, sulfides and selenides, such as $\text{Li}_x\text{V}_3\text{O}_8$, with vanadium oxides being preferred. (See column 2, lines 12 to 20.) Useful polymeric materials in Rourke's invention are those having an anionic group covalently bonded to the polymer chain, with the only example provided being poly(ethylene oxide). (See column 2, lines 21 to 38.) However, Rourke does not teach or suggest including both a conductive polymer and an ionic conductive polymer different from the conductive polymer, as presently

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claimed. Accordingly, Applicant respectfully requests that the rejection over Rourke be withdrawn.

The Examiner rejected claims 3 and 4 under 35 U.S.C. § 103(a) as allegedly unpatentable over Rourke in view of Walker, Jr. et al. (H1576). Applicant respectfully traverses this rejection.

Walker is directed to solid polymer electrolytes. The Examiner states that that Walker discloses that "polyethylene oxide is functionally equivalent to polypyrrole, polyaniline, polyacetylene, or polyalkylthiophene for preparing a solid electrolyte." (Office action at 4.) However, Walker does not address the use of these polymers for coating lithium complex metal oxide particles to prepare a positive active material, as presently claimed and as described in Rourke. Instead, Walker's cell includes a lithium compound as a cathode and a solid solution electrolyte containing a polymer. One skilled in the art reading Rourke would not look to Walker's disclosure of alleged equivalence between polymers that Walker is using for a solid electrolyte to modify Rourke's polymer that Rourke is using to coat a lithium compound for a positive active material. The polymers are being provided for two completely different purposes. Accordingly, there is no motivation to combine Walker with Rourke to arrive at the claimed invention.

Moreover, even if one were to combine these references, as discussed above, Rourke does not teach or suggest coating the particles with a mixture of both a conductive polymer and an ionic conductive polymer different from the conductive polymer. Walker does not make up for this deficiency. Applicant therefore respectfully requests that the rejection over Rourke and Walker be withdrawn.

The Examiner rejected claims 8, 9, 14, 16 to 20 and 22 under 35 U.S.C. § 103(a) as allegedly unpatentable over Rourke in view of Takahashi (U.S. Patent No. 5,679,480). Applicant respectfully traverses this rejection.

The Examiner relies on Takahashi to teach the specific lithium compositions recited in the rejected claims. However, Takahashi does not remedy the deficiencies of

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Rourke, discussed above. Specifically, Takahashi does not teach or suggest coating lithium particles with a solution containing a mixture of both a conductive polymer and an ionic conductive polymer different from the conductive polymer, as presently claimed. Applicant therefore respectfully requests that the rejection over Rourke and Takahashi be withdrawn.

In view of the foregoing amendments and remarks, Applicant respectfully submits that claims 1 to 5 and 7 to 15, and 17 to 23 are in condition for allowance, and a timely indication of allowance is respectfully requested. If there are any remaining issues that can be addressed by telephone, Applicant invites the Examiner to contact the undersigned at the number indicated below.

Respectfully submitted,

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